



FACTSHEET | UPDATED MAY 2025

Summer cover crops for Australia

Tools for soil management

Match your main soil management aim to the best cover crop options for your farm¹

Main Aim	Crop	Comments
Add organic matter, build soil structure (READ Soil Organic Matter: Rules of Thumb²)	<ul style="list-style-type: none"> Japanese Millet Sorghum-Sudan grass Rhodes grass Tillage radish Buckwheat 	<p>Functions:</p> <ul style="list-style-type: none"> Adds organic matter through roots, root exudates and shoots High root activity <i>stabilises</i> soil chemically and physically High aboveground biomass <i>protects</i> soil surface, and when incorporated provides excellent organic matter input. <i>Encourages</i> mycorrhizae (VAM) and other soil life including microbiology <p>Considerations:</p> <ul style="list-style-type: none"> Time transition to minimise cultivations Time and method of termination and incorporation
Add nitrogen (READ Organic Nitrogen – Rules of Thumb³)	<ul style="list-style-type: none"> Sunn hemp Lablab Cowpeas Chickpeas 	<p>Functions:</p> <ul style="list-style-type: none"> High nitrogen fixing levels of these legumes can <i>inhibit</i> nitrogen fixation The higher the aboveground biomass, the more N is fixed and stored (20-25 kgN for every tonne of dry biomass) Depending on species, legumes with good biomass and nodulation <i>can fix</i> up to 250 kgN/ha <p>Considerations:</p> <ul style="list-style-type: none"> Inoculate with the correct strain of N-fixing bacteria and check root nodulation once established. Read more about biologicals⁴



Main Aim	Crop	Comments
Recover and store fertiliser nutrients left in the soil after crop harvest	<ul style="list-style-type: none"> • Millet • Sorghum • Sudan grass • Tillage radish 	<p>Functions:</p> <ul style="list-style-type: none"> • Captures and stores nutrients to prevent leaching or loss into the <i>atmosphere</i> (denitrification) • <i>Scavenges and recycles</i> nutrients from below the crop's rootzone • <i>Helps to 'mop up'</i> high soil nitrate levels (>50 ppm NO₃-N)
Soil-borne pest and disease suppression (READ Biofumigation Factsheet ⁵)	<ul style="list-style-type: none"> • Sudan grass • Sorghum 	<p>Functions:</p> <ul style="list-style-type: none"> • <i>Suppresses</i> volunteer plants after harvest and weeds that might host soil borne diseases <p>Considerations:</p> <ul style="list-style-type: none"> • To suppress nematodes, use a variety high in dhurrin • Try to achieve maximum fast soil coverage and high biomass • Terminate at flowering, mulch finely and incorporate into the soil ASAP, roll soil or water in to seal the soil surface - key to effectiveness • Soil should be moist but not wet to trap the fumigating
Weed control	<ul style="list-style-type: none"> • Japanese Millet 	<p>Considerations:</p> <ul style="list-style-type: none"> • Use 30% higher sowing rates than normal to outcompete weeds • Use Buckwheat for short windows or
Protect soil from wind and water erosion	<ul style="list-style-type: none"> • Rhodes grass • Indian blue grass • Other quick establishing, high biomass cover crops 	<p>Considerations:</p> <ul style="list-style-type: none"> • High biomass crops • Management of residues needs to be considered upfront as it depends on the following crop



Main Aim	Crop	Comments
Improve water infiltration and storage (READ Soil Health and Water Use Efficiency Factsheet⁶⁾	<ul style="list-style-type: none"> • Sorghum • Sudan grass • Millet • Tillage radish 	<p>Functions:</p> <ul style="list-style-type: none"> • <i>Maintains</i> soil porosity, allowing water to infiltrate into the soil • Residues on soil surface <i>reduce</i> evaporation and provide organic matter in the soil to store more water (avoid large volumes of dry, straw like residues on top of the soil with a high C:N ratio as these will be very slow to break down) <p>Considerations:</p> <ul style="list-style-type: none"> • Timely termination while plants are green and 'juicy' allows not to lose too much water in dry years or not holding too much moisture in wet years, and build-up of high C:N residues

Mixtures of cover crop species can be planted to optimise the benefits. Typically, mixes will include a grass, a legume and possibly a brassica. It is best if they are ready to terminate at the same time.

When choosing a cover crop, consider your overall rotation and pest and disease carryover potential. Some cover crops can act as hosts for beneficial insects. Get local advice on how to benefit from this on your farm.

This table provides a general overview of summer cover crops for Australia. Growers should seek additional information on appropriate species, cultivars and sowing rates to tailor the decisions to their specific region, situation and goals.

Links to further reading

1. <https://soilwealth.com.au/2022/02/cover-crops-for-australian-vegetable-growers/>
2. <https://soilwealth.com.au/2024/10/biological-products-database/>
3. <https://soilwealth.com.au/2024/11/organic-nitrogen-rules-of-thumb/>
4. <https://soilwealth.com.au/2024/04/soil-organic-matter-rules-of-thumb/>
5. <https://soilwealth.com.au/2018/10/soil-health-and-water-use-efficiency/>
6. <https://soilwealth.com.au/2024/07/biofumigation-fact-sheet/>